Wristbands and Headbands

Field of Invention

The present invention relates to wristbands and headbands.

Background of Invention

Referring to Figure 3, a conventional wristband 1 is woven from a cotton yarn 2 and a rubber yarn 3. The cotton yarn 2 provides a soft feeling to a wrist. The rubber yarn 3 provides elasticity necessary for binding the wrist. However, several drawbacks are encountered in the use of the wristband 1. Firstly, the wristband 1 provides poor ventilation for air. Secondly, the wristband 1 provides poor permeability and absorbency for water. Thirdly, the wristband 1 provides an inadequately soft feeling.

The present invention is therefore intended to obviate or at least alleviate the problems encountered in prior art.

Summary of Invention

It is an objective of the present invention to provide a band with good ventilation for air.

It is another objective of the present invention to provide a band with good permeability and absorbency for water.

It is another objective of the present invention to provide a band with an inadequately soft feeling.

According to the present invention, a band includes a split compound yarn and a rubber yarn woven together with the split compound yarn. The band is made by means of a process including a step of making the compound yarn, a step of providing the rubber yarn, a step of weaving the compound yarn together with the rubber yarn so as to form the band, and a step of washing the band so as to split the compound yarn.

Other objects, advantages and novel features of the invention will become more apparent from the following detailed description in conjunction with the attached drawings.

Brief Description of Drawings

The present invention will be described via detailed illustration of the preferred embodiment referring to the drawings.

Figure 1 is a top view of a wrist wearing a wristband according to the preferred embodiment of the present invention.

Figure 2 is simplified view of a machine for making a compound yarn used in the wristband of Figure 1.

Figure 3 is a top view of a wrist wearing a conventional wristband.

Detailed Description of Preferred Embodiment

Figure 1 shows a wrist wearing a wristband 10 according to the preferred embodiment of the present invention. The wristband 10 is woven from

a split compound yarn 11 and a rubber yarn 12.

To make the wristband 10, at a first stage, the compound yarn 11 and the rubber yarn 12 are made separately. At a second stage, the compound yarn 11 and the rubber yarn 12 are woven so as to form the wristband 10. At a final stage 12, the wristband 10 is dyed and washed so that the compound yarn 11 is split.

The split compound yarn 11 of the wristband 10 provides advantageous features such as good ventilation for air, good permeability and absorbency for water and an inadequately soft feeling.

The third stage is closely related to the first stage. That is, the splitting of the compound yarn 11 in the third stage is closely related to the making of the compound yarn 11 in the first stage. Therefore, the first stage will be described in detail.

Figure 2 shows a machine for making the compound yarn 11. The machine includes a first melting and extruding block 20, a second melting and extruding block 25, a metering pump 30, a spinning block 35, a cooling and curing block 40, an extending block 50, a heating and setting block 60 and a reeling block 70.

First material 13, such as nylon is provided to the first melting and extruding block 20. The first material 13 is molten in the first melting and extruding block 20. Then, the molten first material 13 is extruded

from the first melting and extruding block 20.

Second material 14, such as polyester is provided to the second melting and extruding block 25. The second material 14 is molten in the second melting and extruding block 25. Then, the molten second material 14 is extruded from the second melting and extruding block 25.

The molten first material 13 and the molten second material 14 are both provided to the metering pump 30. The molten first material 13 and the molten second material 14 are provided from the metering pump 30 to the spinning block 35 at different predetermined rates.

In the spinning block 35, the molten first material 13 and the molten second material 14 are both spun into filaments. The filaments are all provided from the spinning block 35 to the cooling and curing block 40.

In the cooling and curing block 40, the filaments are cooled and cured. Then, the filaments are all provided from the cooling and curing block 40 to the extending block 50.

In the extending block 50, the filaments are compound so as to form a compound yarn. The compound yarn is extended so that its diameter is reduced to a desired value. Thus, the compound yarn becomes the compound yarn 11. Then, the compound yarn 11 is provided from the extending block 50 to the heating and setting block 60.

In the heating and setting block 60, the compound yarn 11 is heated and

set. Then, the compound yarn 11 is provided from the heating and setting block 60 to the reeling block 70.

In the reeling block 70, the compound yarn 11 is reeled.

To facilitate the splitting of the compound yarn 11, a chemical step or a mechanical step may be taken in the making of the compound yarn 11.

The chemical step is taken in the melting of the first material 13 or the second material 14. To this end, nucleated agent such as $CaSiO_3$, SiO_2 and MoS_2 may be added to the first material 13 or the second material 14. Thus, the first material 13 crystallizes easier than the second material 14, or vice versa. Hence, the filaments of the first material 13 are easily split from the filaments of the second material 14 as the wristband 10 is dyed and washed.

Alternatively, splitting agent such as superfine Teflon may be added to the first material 13 or the second material 14. Thus, the filaments of the first material 13 are easily split from the filaments of the second material 14 as the wristband 10 is dyed and washed.

Alternatively, the first material 13 or the second material 14 is made via mixing 20-80% of amorphous polymer with 80-20% of crystal polymer. Thus, the contractibility of the first material 13 is much higher than that of the second material 14, or vice versa. Hence, the filaments of the first material 13 are easily split from the filaments of the second material 14 as

the wristband 10 is dyed and washed in hot water.

Alternatively, the first material 13 and the second material 14 may be molten at carefully calculated temperatures. Thus, the stickiness of the first material 13 to the second material 14 is low. Hence, the filaments of the first material 13 are easily split from the filaments of the second material 14 as the wristband 10 is dyed and washed.

The mechanical step is taken in the spinning of the compound yarn 11. In the mechanical step, the compound yarn 11 reeled at a rate of 3000-8000 meter per minute. Thus, the first material 13 crystallizes at a rate much different from a rate at which the second material 14 crystallizes. Hence, the filaments of the first material 13 are easily split from the filaments of the second material 14 as the wristband 10 is dyed and washed.

The present invention has been described via detailed illustration of the preferred embodiment. Those skilled in the art can derive variations from the preferred embodiment without departing from the scope of the present invention. Therefore, the preferred embodiment shall not limit the scope of the present invention defined in the claims.